

The opinion in support of the decision being entered today was *not* written for publication and is *not* binding precedent of the Board.

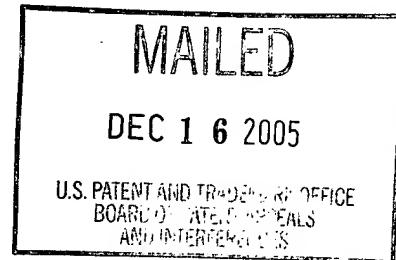
UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte UWE SCHÜMANN, ULRIKE WAPPLER,
RALF HIRSCH, ANDREAS BECKMANN and ANDREE BERNOTH

Appeal No. 2006-0296
Application 09/698,404

ON BRIEF



Before GARRIS, WARREN and WALTZ, *Administrative Patent Judges*.

WARREN, *Administrative Patent Judge*.

Decision on Appeal

This is an appeal under 35 U.S.C. § 134 from the decision of the examiner finally rejecting claims 1 through 8, all of the claims in the application.

Claims 1 and 7 illustrate "glaze wash." appellants' invention of a process for continuous production of self-adhesive article, which can be a self-adhesive tape, and a tape so produced, and are representative of the claims on appeal:

1. A process for continuous production of self-adhesive article, wherein
 - a) essentially one polyol component is placed in a container A and essentially one isocyanate component is placed in a container B,
 - b) the polyol component and the isocyanate component are continuously supplied to and mixed in a mixer, to form a polyurethane-forming reactive mixture,
 - c) the polyurethane-forming reactive mixture is continuously applied to a first backing material which is coated with a pressure-sensitive adhesive composition and moves optionally at

a constant speed, the isocyanate component and polyol component reacting on the adhesive-coated backing material to form a polyurethane composition,

d) the resulting laminate, comprising the first backing material, pressure-sensitive adhesive composition and polyurethane composition, is passed through a heat tunnel, in which the polyurethane composition cures,

e) the laminate is wound in a winding station.

7. A single- or double-sided self-adhesive tape obtained by a process as claimed in claim 1.

The references relied on by the examiner are:

Cotsakis et al. (Cotsakis)	5,686,179	Nov. 11, 1997
Schümann et al. (Schümann)	6,129,983	Oct. 10, 2000

The examiner has rejected appealed claims 1 through 8 under 35 U.S.C. § 103(a) as being unpatentable over Schümann in view of Cotsakis (answer, pages 3-5), and appealed claim 8 under 35 U.S.C. § 103(a) as being unpatentable over Schümann in view of Cotsakis as applied to claim 6, and further in view of the admitted prior art at page 1, ll. 33-35, and page 2, ll. 28-29, of the specification (answer, page 5).

Appellants argue claims 1 through 8 as a group with respect to the first ground of rejection, and claim 8 with respect to the second ground of rejection. Thus, we decide this appeal based on appealed claims 1, 7 and 8 as representative of the grounds of rejection and appellants' groupings of claims. 37 CFR § 41.37(c)(1)(vii) (September 2004).

We affirm.

We refer to the answer and to the brief for a complete exposition of the positions advanced by the examiner and appellants.

Opinion

We have carefully reviewed the record on this appeal and based thereon find ourselves in agreement with the supported position advanced by the examiner that, *prima facie*, the claimed process for continuous production of self-adhesive article and a tape so produced encompassed by appealed claims 1 and 7 would have been obvious over the combined teachings of Schümann and Cotsakis and the claimed process for continuous production of self-adhesive article encompassed by appealed claim 8 would have been obvious over the combined teachings of Schümann and Cotsakis and the admitted prior art in the specification, to one of ordinary skill in this art at the time the claimed invention was made. Accordingly, since a *prima facie* case of

obviousness has been established by the examiner, we again evaluate all of the evidence of obviousness and nonobviousness based on the record as a whole, giving due consideration to the weight of appellants' arguments in the brief. *See generally, In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992); *In re Piasecki*, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984).

With respect to the first ground of rejection, appellants submit that the examiner has not considered several teachings of Cotsakis with respect to the process of preparing a tape disclosed therein (brief, page 4). Appellants contend that "Cotsakis is not really a continuous process, as Cotsakis' reactants are initially prepared in a batch mixer . . . notwithstanding the use of a continuous mixing extruder downstream of . . . [this] step," relying on col. 5, ll. 43-50 (brief, pages 4-5). Appellants point out that the process of Cotsakis does not form a polyurethane or other backing layer on an adhesive layer, and that a "single-layer tape" is formed from polymeric mixtures which involve a different technology (*id.*, page 5). Appellants further point out that "Cotsakis rolls up an essentially uncured single-layered tape, which he can do because of the composition of his particular tape," contending that one of ordinary skill in the art "would never think of rolling up an unhardened polyurethane tape," pointing to col. 8, ll. 6-13, of Schümann "wherein Schümann cures and stores his polyurethane backing for one week before applying the adhesive" (*id.*; original emphasis deleted).

On this basis appellants argue that one of ordinary skill in the art would not combine Schümann and Cotsakis because of the differences in tape and chemistry, and that "no person skilled in the art would think it possible to continuously form a polyurethane backing onto an adhesive and then wind it up without allowing several days for the polyurethane to harden" (*id.*). Appellants contend that the latter teaches away from the claimed process (*id.*, page 6).

Appellants finally contend that the disclosure at col. 8, ll. 18-32, of Schümann does not address "the step of winding the tape up on a roll, or the 'cutting and storage' of the tape prior to rolling it up, which is taught in the immediate preceding language," and thus, there is "no suggestion of including the winding-up step in a continuous process" (*id.*).

Appellants do not dispute the examiner's finding that Schümann in fact would have disclosed a double-sided self-adhesive tape as the examiner finds (answer, page 5).

The examiner responds that Cotsakis does use a continuous mixer extruder to continuously mix and extrude the components onto a release paper, as disclosed at element **28** of **Fig. 2**, finding that the base polymer is batch mixed “in sufficient amount to allow a continuous process of mixing and forming the tape” (answer, page 5). The examiner points out that Cotsakis was relied on to “provide the teaching of a continuous process of forming a tape,” relying on **Fig. 2**, and combined with Schümann’s disclosure of applying a polyurethane backing to an adhesive layer at col. 3, l. 65, to col. 4, l. 12, results in the claimed invention (*id.*, page 6). The examiner further finds that Cotsakis would have taught “rolling up the backing of the tape after a curing step,” relying on col. 8, ll. 51-52, and Schümann would have taught “curing the polyurethane backing through a drying tunnel,” and that at col. 8, ll. 18-31, Schümann would have disclosed coating the polyurethane mixture directly onto the adhesive composition, followed by curing and drying (*id.*, pages 6-7). Thus, the examiner is of the opinion that one of ordinary skill would have considered the references to be in the same field of endeavor and would have combined them to arrive at a continuous mixing and coating process (*id.*, page 6).

We agree with the examiner as we find substantial evidence in the record supporting the position advanced in the answer. We interpret the plain language of appealed claim 1 in context to encompass a continuous processes “wherein” the two components of a polyurethane forming reaction composition are in separate containers until combined in a mixer and continuously applied to either or both layers of a pressure-sensitive adhesive layer/backing layer laminate, which can be a tape, the resulting laminate containing at least one polyurethane composition layer “is passed through a heating tunnel, in which the polyurethane composition cures,” and the laminate then “wound in a winding station.” In this respect, we interpret the transitional term “wherein” in light of the specification to have the meaning in context of “during which,”¹ and thus, this transitional term does not limit the claimed process to the specified steps and ingredients. We further interpret the term “cures” in context to include curing of the polyurethane composition at least to the extent that the tape can be further processed, including being “wound in a winding station.” Accordingly, the claim is open to encompass processes

¹ See generally, *The American Heritage Dictionary Of The English Language* 1958 (4th ed., Boston, Houghton Mifflin Company, 2000).

which include additional steps and ingredients other than those specified, and indeed, the disclosure in the written description of the specification, including **Fig. 1**, makes clear that other components and steps can be included (e.g., page 5, l. 19, to page 8, l. 33), as does appealed dependent claims 2 through 4, 6 and 8. *See, e.g., In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364, 70 USPQ2d 1827, 1830 (Fed. Cir. 2004); *In re Morris*, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997); *In re Zletz*, 893 F.2d 319, 321-22, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989).

We find that Schümann would have disclosed to one of ordinary skill in this art a process for preparing a double-sided self-adhesive tape wherein an at least two component polyurethane composition is coated on an adhesive layer laminated to a release layer, and a second adhesive layer laminated to a release layer is then laminated on the uncured polyurethane composition layer, the uncured polyurethane layer of the resulting five layer laminate cured or crosslinked in a drying tunnel to form the tape (e.g., col. 3, ll. 32-44, col. 3, l. 61, to col. 4, l. 11, and col. 7, l. 55, to col. 8, ll. 31). Schümann does not disclose a complete process for preparing the tape but does disclose that the polyurethane composition prepared “with the aid of the two-component mixing technology” can “be applied on customary coating machines . . . followed by chemical cross linking in a drying tunnel” (col. 3, ll. 32-44; *see also*, e.g., col. 3, ll. 61-65, and col. 4, ll. 2-3). We determine that one of ordinary skill in this art would have reasonably been led by Schümann to prepare the tapes disclosed therein by processes known in the art to prepare tapes, and would have reasonably inferred from the teachings of the reference that such processes continuously produce tapes.²

The examiner points out that the differences between the claimed process encompassed by appealed claim 1 and the process to the extent disclosed by Schümann are that the reference would not have specifically disclosed continuous mixing and applying the polyurethane composition to the adhesive layer-release layer laminate and winding the tape in a winding

² It is well settled that a reference stands for all of the specific teachings thereof as well as the inferences one of ordinary skill in this art would have reasonably been expected to draw therefrom, *see In re Fritch*, 972 F.2d 1260, 1264-65, 23 USPQ2d 1780, 1782-83 (Fed. Cir. 1992); *In re Preda*, 401 F.2d 825, 826, 159 USPQ 342, 344 (CCPA 1968), presuming skill on the part of this person. *In re Sovish*, 769 F.2d 738, 743, 226 USPQ 771, 774 (Fed. Cir. 1985).

station, and determines that one of ordinary skill in this art would have employed such “conventional” continuous steps as evinced by the teachings of Cotsakis in the process of Schümann (answer, pages 3-4). We agree with the examiner’s analysis of Cotsakis (*see above* page 4). Indeed, Cotsakis would have disclosed each of the steps specified in appealed claim 1 in the order set forth therein, including the steps of continuously mixing two sets of ingredients for the adhesive held in different containers in a continuous mixing extruder, continuous application of the adhesive mixture to a release paper to form a two-layer tape laminate, and winding or rolling the partially cured two-layer adhesive tape onto a tape core to form a tape roll (e.g., col. 3, ll. 37-60, col. 5, ll. 43-61, col. 8, ll. 43-56, and **Fig. 2**), wherein the principal difference between the continuous process disclosed by this reference and the process within the teachings of Schümann is in the composition continuously applied and the substrate to which it is applied. However, we find no evidence in the record establishing that the chemistry of the materials applied by Schümann or Cotsakis affects the processing steps in addition to requiring separate containers for the starting ingredients which would otherwise chemically interact prior to application on a substrate.

Therefore, on this record, we determine that one of ordinary skill in this art routinely following the combined teachings of Schümann and Cotsakis would have reasonably used the steps for continuously preparing a tape disclosed in Cotsakis in the process of preparing a tape as disclosed in Schümann in the reasonable expectation of continuously preparing the tape of Schümann, thus arriving at the claimed process encompassed by appealed claim 1, including each and every element thereof arranged as required therein, without recourse to appellants’ specification. *See In re Dow Chem. Co.*, 837 F.2d 469, 473, 5 USPQ2d 1529, 1531 (Fed. Cir. 1988) (“The consistent criterion for determination of obviousness is whether the prior art would have suggested to one of ordinary skill in the art that [the claimed process] should be carried out and would have a reasonable likelihood of success viewed in light of the prior art. [Citations omitted] Both the suggestion and the expectation of success must be founded in the prior art, not in the applicant’s disclosure.”); *In re Keller*, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981) (“The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention

must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art.”); *see also In re O’Farrell*, 853 F.2d 894, 903-04, 7 USPQ2d 1673, 1680-81 (Fed. Cir. 1988) (“Obviousness does not require absolute predictability of success. . . . There is always at least a possibility of unexpected results, that would then provide an objective basis for showing the invention, although apparently obvious, was in law nonobvious. [Citations omitted.] For obviousness under § 103, all that is required is a reasonable expectation of success. [Citations omitted.]”).

We are not convinced otherwise by appellants’ arguments. We agree with the examiner that, contrary to appellants’ arguments, Cotsakis would have disclosed a continuous process for preparing a two-layer self-adhesive tape, and indeed, as recognized by appellants, the reference would have disclosed a continuous mixing extruder to combine ingredients drawn from respective containers. We are not persuaded that the differences in the chemistry of the coatings or the number of layers in the tape produced would have led one of ordinary skill in this art away from combining the references because both Schümann and Cotsakis apply the mixed compositions to a substrate followed by curing the resulting laminated tape in a heating tunnel or continuous oven, and thus, neither reference contains disclosure which criticizes, discredits or otherwise discourages following the process taught by Cotsakis. *See In re Fulton*, 391 F.3d 1195, 1201, 73 USPQ2d 1141, 1145-46 (Fed. Cir. 2004). The winding or rolling of the laminated tape onto a core is shown by Cotsakis, and we take notice that one of ordinary skill in this art would have been armed with the knowledge that it was well known that any manner of tape is wound on a core as part of the production process. *See In re Ahlert*, 424 F.2d 1088, 1091-92, 165 USPQ 418, 420-21 (CCPA 1970) (notice may be taken “of facts beyond the record which, while not generally notorious, are capable of such instant and unquestionable demonstration as to defy dispute”).

Turning now to appealed claim 7, this claim is drafted in product-by-process format, and accordingly, encompass any single- or double-sided self-adhesive tape prepared by any process which results in the characteristics imparted by the specified steps of the processes encompassed by appealed claim 1 on which it is dependent. *See generally, In re Thorpe*, 777 F.2d 695, 697,

227 USPQ 964, 966 (Fed. Cir. 1985); *In re Bridgeford*, 357 F.2d 679, 680-83, 149 USPQ 55, 56-58 (CCPA 1966). The patentability of the thus claimed products is a separate consideration from that of the claimed process. *See generally, Thorpe, supra; In re Wertheim*, 541 F.2d 257, 271, 191 USPQ 90, 103-04 (CCPA 1976) (“These claims are cast in product-by-process form. Although appellants argue, successfully we have found, that the [reference] disclosure does not suggest . . . appellants’ process, the patentability of the products defined by the claims, rather than the processes for making them, is what we must gauge in light of the prior art.”). We agree with the examiner (answer, page 5) that Schümann would have disclosed a double-sided self-adhesive tape falling within appealed claim 7. As we found above, appellants do not dispute the findings of the examiner.

There are two grounds of rejection of appealed claim 8. Appellants do not separately argue the patentability of this claim with respect to the combined teachings of Schümann and Cotsakis alone (answer, page 5, second paragraph). With respect to the ground of rejection of this claim alone over the combined teachings of the references and further with the prior art acknowledged in the specification as relied on by the examiner (*id.*, third and fourth paragraphs), appellants rely on the arguments that we have considered above (brief, pages 6-7).

Accordingly, based on our consideration of the totality of the record before us, we have weighed the evidence of obviousness found in the combined teachings of Schümann and Cotsakis alone and as further combined with the admitted prior art in the specification with appellants’ countervailing evidence of and argument for nonobviousness and conclude that the claimed invention encompassed by appealed claims 1 through 8 would have been obvious as a matter of law under 35 U.S.C. § 103(a).

The examiner’s decision is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a)(1)(iv) (2005).

AFFIRMED

Bradley R. Garris
BRADLEY R. GARRIS)
Administrative Patent Judge)

Charles F. Warren
CHARLES F. WARREN)
Administrative Patent Judge)

Thomas A. Waltz
THOMAS A. WALTZ)
Administrative Patent Judge)

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